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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,989	02/26/2004	Shinya Kimoto	16169.26.7.	2645
22913 7590 02/21/2007 WORKMAN NYDEGGER (F/K/A WORKMAN NYDEGGER & SEELEY) 60 EAST SOUTH TEMPLE 1000 EAGLE GATE TOWER SALT LAKE CITY, UT 84111			EXAMINER CANTELMO, GREGG	
			ART UNIT 1745	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		02/21/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/785,989

Applicant(s)

KIMOTO, SHINYA

Examiner

Gregg Cantelmo

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Preliminary Amendment February 26, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☒ Claim(s) 5 and 8-10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/28/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Preliminary Amendment

1. In response to the preliminary amendment received February 26, 2004, claims 6 and 8 have been amended and claims 9 and 10 have been added to delete multiple dependency.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement filed May 28, 2004 has been placed in the application file and the information referred to therein has been considered as to the merits.

Drawings

4. The drawings received February 26, 2004 are acceptable for examination purposes.

Claim Objections

5. Claim 1 is objected to because of the following informalities: the phrase "... a heat pipe and end of which ..." should be --a heat pipe, an end of which--. Appropriate correction is required. Claims 2-10 are objected to for the same reasons since they are all dependent upon claim 1.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. Claim 1 recites the limitation "the other end" in line 7. There is insufficient antecedent basis for this limitation in the claim. It is unclear which end of the plurality of side ends the claim is referring to. Claims 2-10 are rejected for the same reasons since they are all dependent upon claim 1.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 3, 4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by JP 2001-076771 (JP '771).

JP '771 discloses a cooling device for a battery pack comprising a cooling medium feeding device 12 for feeding cooling medium for feeding coolant to the parallel-arranged secondary batteries 1 so as to interpose the cooling medium path through the pack and between the batteries 1, the cooling device further comprises heat pipes 5 and 6 which is also in parallel with the batteries and has a downstream portion and an upstream portion wherein the upstream portion is provided closer to the fan 12

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and thus is exposed in a portion of the battery pack having a lower temperature than the downstream side (Figs. 1-4, abstract and paragraphs 10-19 as applied to claim 1).

A heat-conductive member 3 is attached to the heat pipes 5 and the upstream end of heat pipes 5 are exposed to the cooling medium provided by fan 12. Also heat-conductive member 4 is attached to heat pipes 6 and the upstream end of heat pipes 6 is exposed to the cooling medium provided by fan 12 (Figs. 1, 3 and 4 as applied to claims 3 and 4).

The external cooling medium path is defined by heat insulating foam material 7 which is attached to end plate 8 (Figs. 1 and 3 abstract and paragraph 15 as applied to claim 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 1-4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 07-014616 ('616) in view of JP '771.

JP '616 discloses a battery arrangement and a system for cooling the batteries wherein the battery pack is configured such that the plurality of rechargeable batteries, each of which is a prismatic battery having rectangular long side faces and composed of a plurality of cells arranged along a longitudinal direction of the long side faces of the rechargeable battery, are arranged in parallel so as to interpose the cooling medium path between the long side faces of the rechargeable batteries, and the cooling medium feeding device feeds the cooling medium along the longitudinal direction of the long side faces of the rechargeable batteries to the cooling medium path (see lone figure). The cooling medium flows in a direction parallel with the coolant spacers 5 along side and between the batteries. JP '616 also teaches of using heat pipes 6 to assist in cooling the batteries between the two sets of batteries (as applied to claim 1).

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JP '616 does not teach of providing a heat pipe arrangement as recited in claims 1, 3, 4, 6 and 7.

JP '771 discloses a cooling device for a battery pack comprising a cooling medium feeding device 12 for feeding cooling medium for feeding coolant to the parallel-arranged secondary batteries 1 so as to interpose the cooling medium path through the pack and between the batteries 1, the cooling device further comprises heat pipes 5 and 6 which is also in parallel with the batteries and has a downstream portion and an upstream portion wherein the upstream portion is provided closer to the fan 12 and thus is exposed in a portion of the battery pack having a lower temperature than the downstream side (Figs. 1-4, abstract and paragraphs 10-19 as applied to claim 1).

Heat-conductive member 4 is attached to heat pipes 6 and the upstream end of heat pipes 6 is exposed to the cooling medium provided by fan 12 (Figs. 1, 3 and 4 as applied to claims 3 and 4).

The external cooling medium path is defined by heat insulating foam material 7 which is attached to end plate 8 (Figs. 1 and 3 abstract and paragraph 15 as applied to claim 6).

Furthermore the aluminum container 4 is a heat conductive member which encases and is attached to the sides of the internal battery pack elements and extends along the flow direction of the cooling medium. Container 4 is further provided with heat pipes 6 (as applied to claim 7).

JP '771 discloses providing a battery array encasement 3 into a battery housing 4/7. The housing 4/7 serves to assist thermal regulation of the battery array 3. Thus

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the housing arrangement 4/7 could obviously be employed about other cell arrangements such as that of JP '616 for the purpose of improving temperature regulation of any given battery array.

Therefore it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to modify the teachings of JP '616 by encasing the battery array in the heat pipe/dual-layer housing and cooling system of JP '771 since it would have improved the thermal management of the battery pack of JP '616.

Allowable Subject Matter

9. Claims 5 and 8-10 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

As to claims 5 and 9: The following is a statement of reasons for the indication of allowable subject matter: none of the prior art of record are considered to teach, suggest or render obvious the cooling device of claim 5 and of the arrangement of the thermally conductive member, heat insulating material and heat pipe in relation to the battery pack and cooling medium flow.

As to claims 8 and 10: The following is a statement of reasons for the indication of allowable subject matter: none of the prior art of record are considered to teach, suggest or render obvious the cooling device of claims 8 or 10 wherein the thermally conductive member comprises a metal plate to which the heat pipe is attached and an insulating thermally conductive sheet interposed between the metal plate and the batteries.

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JP '771 discloses providing a thermally conductive member 4 of aluminum wherein the heat pipes are disposed but there is no teaching or suggestion to provide an insulating thermally conductive sheet interposed between the metal plate and the batteries.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregg Cantelmo whose telephone number is 571-272-1283. The examiner can normally be reached on Monday to Thursday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


February 16, 2007

Gregg Cantelmo
Primary Examiner
Art Unit 1745

C. E. LINEBARGER.
BATTERY TEMPERATURE CONTROLLER.
APPLICATION FILED MAR. 17, 1919.

1,363,889.

Patented Dec. 28, 1920.

Fig. 1

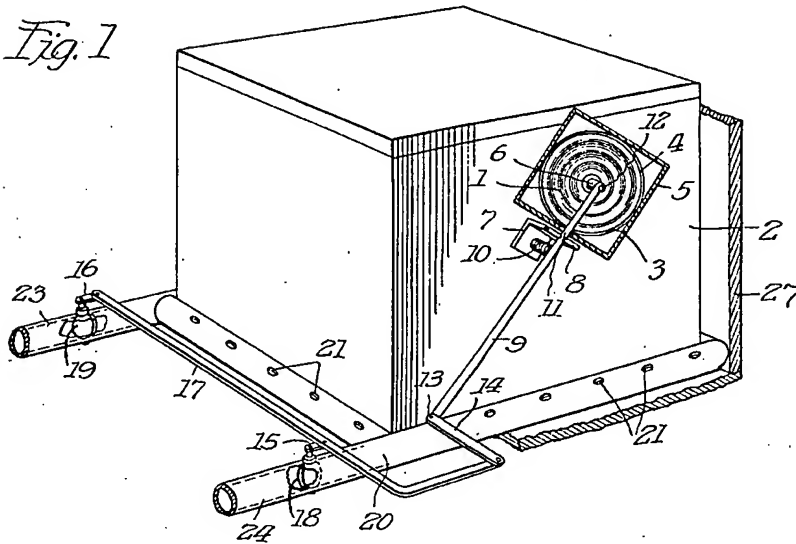
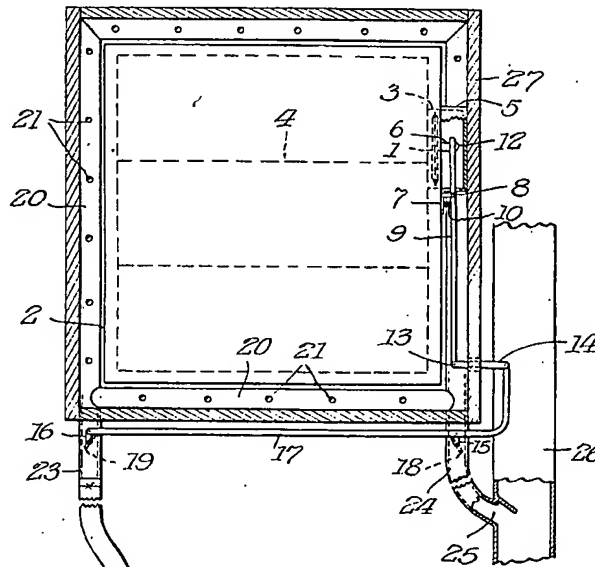
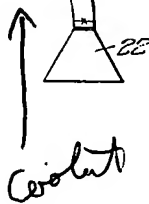


Fig. 2



Witness:
L. W. Novander.



Inventor
Charles E. Linebarger
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att'y